Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte MASAMI IKEDA and YUICHI KIMURA

Appeal No. 2003-2052
Application No. 09/403,674

ON BRIEF

Before OWENS, PAWLIKOWSKI, and MOORE, *Administrative Patent Judges.*

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

This appeal is from the final rejection of claims 1, 2 and 4-11, which are all of the claims pending in the application.

THE INVENTION

The appellants claim a heat sink which, the appellants state, may be adapted for use in dissipating heat from electronic equipment and the like having a heat generating part which needs to be cooled (specification, page 1, lines 3-5). Claim 1 is illustrative:

1. A heat sink comprising:

a plate-shaped heat pipe including an upper plate member and a lower plate member to form a hermetically sealed cavity, and a working fluid enclosed therein;

at least one heat radiating fin integrally formed with said upper plate member;

at least one pressure resisting column disposed in said cavity; and

at least one heat transferring metal column integrally formed with said upper plate member for spreading heat generated from a heat generating part, said heat transferring metal column having substantially a same cross sectional area as that of said heat generating part which is to be attached to an outer surface of said lower plate member, and being disposed in said cavity on a portion corresponding to said heat generating part.

THE REFERENCES

Davis	3,270,250	Aug. 30, 1966
Arai et al. (Arai)	5,358,032	Oct. 25, 1994
Furukawa et al. (Furukawa)	5,937,936	Aug. 17, 1999 (filed Aug. 29, 1997)
HEAM (Soviet Union patent document)	1768915 A1	Oct. 15, 1992
Sasaki et al. (Sasaki)[1] (Japanese Kokai)	6-137775	May 20, 1994

THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 1, 2, 4, 5, 7 and 11 over Davis in view of HEAM; claims 6 and 8 over Davis in view of HEAM, Arai and Furukawa; claim 9 over Davis in view of HEAM and Sasaki; and claim 10 over Davis in view of HEAM, Arai, Furukawa and Sasaki.

[1] Our consideration of Sasaki is based upon the English translation thereof which is of record.

OPINION

We reverse the aforementioned rejections. We need to address only claim 1, which is the sole independent claim.[2]

Davis discloses a heat sink (col. 1, lines 8-13). The examiner relies upon Davis' figure 5 turned sideways such that wall 27 is the appellants' upper plate member and wall 26 is the appellants' lower plate member (answer, pages 4-5). These walls form a hermetically sealed cavity having a working fluid (24; col. 2, lines 21-24) enclosed therein. The examiner relies upon Davis' dimples (35, 36; col. 2, lines 50-53; figure 1) as being the appellants' at least one pressure resisting column disposed in the cavity (answer, page 5). The examiner considers Davis' semiconductor device stem (61; col. 4, line 8-10) to be the appellants' heat generating part, and Davis' threaded support (60; col. 4, lines 6-8) to be the appellants' heat transferring metal column which is integrally formed with the upper plate member, is disposed in the cavity on a portion corresponding to the heat generating part, and has substantially the same cross sectional area as the heat generating part

[2] The examiner does not rely upon Arai, Furukawa or Sasaki for any disclosure which remedies the deficiency in Davis and HEAM as to claim 1.

(figure 5) (answer, page 5). The examiner relies upon HEAM for a suggestion to include in Davis' heat sink at least one heat radiating fin integrally formed with the upper plate member (answer, page 4).

The appellants argue that "the heat generating part (stem 61) of Davis is actually located in the cavity, and not attached to an outer surface as required by claim 1" (brief, pages 6-7). The examiner argues that "the heat generating device '61', '62' illustrated in figure 5 contacts the outer surface of the plate member '26'" (answer, page 6).

Because the appellants' heat transferring metal column and heat generating member must have substantially the same cross sectional area, Davis' component which corresponds to the heat generating member must be stem 61 (figure 5). For this stem to meet the appellants' claim 1 requirement of being attachable to an outer surface of the lower plate member, the cylindrical wall of the heat transferring metal column to which the stem is to be attached must be part of the outer surface of wall 26 and, therefore, cannot be in the cavity formed, in part, from that wall. But if the heat transferring metal column is not in the cavity, then it does not meet the appellants' claim 1 requirement of "being disposed in said cavity on a portion corresponding to

said heat generating part". Likewise, the dimples (35 and 36; figure 5) cannot be in the cavity and, therefore, do not meet the appellants' claim 1 requirement of "at least one pressure resisting column disposed in said cavity".

Accordingly, we conclude that the examiner has not set forth a factual basis which is sufficient to support a conclusion of *prima facie* obviousness of the invention claimed in any of the appellants' claims.

DECISION

The rejections under 35 U.S.C. § 103 of claims 1, 2, 4, 5, 7 and 11 over Davis in view of HEAM, claims 6 and 8 over Davis in view of HEAM, Arai and Furukawa, claim 9 over Davis in view of HEAM and Sasaki, and claim 10 over Davis in view of HEAM, Arai, Furukawa and Sasaki, are reversed.

REVERSED

Terry J. Owens Administrative Patent Judge	)
Beverly A. Pawlikowski Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
James T. Moore Administrative Patent Judge	)

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